Trig Final (TEST v606)
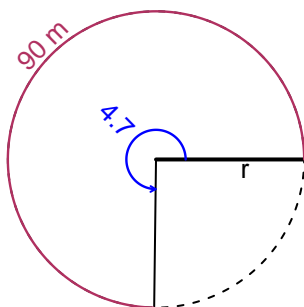
- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The angle measure is 4.7 radians. The arc length is 90 meters. How long is the radius in meters?
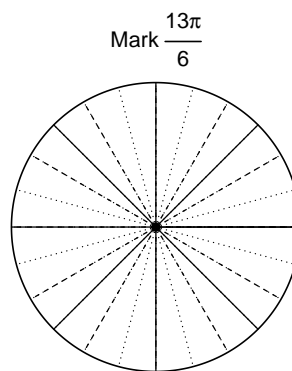

Question 2

Consider angles $\frac{-9\pi}{4}$ and $\frac{13\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{-9\pi}{4}\right)$ and $\sin\left(\frac{13\pi}{6}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{-9\pi}{4}$

Find cos(−9π/4)

Mark $\dfrac{13\pi}{6}$
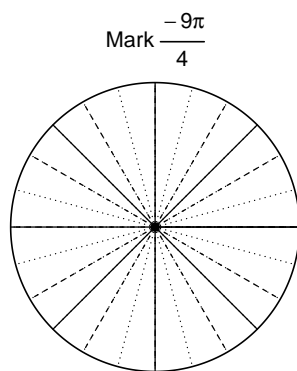
Find sin(13π/6)

Question 3

If $\tan(\theta) = \frac{-15}{8}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = 5.97$ meters, an amplitude of 2.2 meters, and a frequency of 7.41 Hz. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).